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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/940,127	08/27/2001	Trent Gray-Donald	CA920010066US1	3913
25259	7590	06/30/2005	EXAMINER	
IBM CORPORATION 3039 CORNWALLIS RD. DEPT. T81 / B503, PO BOX 12195 REASEARCH TRIANGLE PARK, NC 27709			LAO, SUE X	
			ART UNIT	PAPER NUMBER
			2194	

DATE MAILED: 06/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/940,127

Applicant(s)

GRAY-DONALD ET AL

Examiner

Sue Lao

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 20 January 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### DETAILED ACTION

1. Claims 1-20 are pending. This action is in response to the amendment filed 1/20/2005. Applicant has amended claims 1, 3, 5, 11 and canceled claim 21.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. Claim 1-20 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

The language of independent claims 1, 3, 5, 16 and 20 raises a question as to whether the claim is directed merely to an abstract idea that is not tied to a technological art, environment or machine which would result in a practical application producing a useful, concrete and tangible result to form the basis of statutory subject matter under 35 U.S.C. 101.

Independent claims 1, 3, 5, 16 and 20 do not appear to require any computer hardware to implement the claimed invention. These claims appear to define the metes and bounds of an invention comprised of software alone. There is no support (i.e., explicitly claimed computer hardware) in the body of the claims. Software alone, without a machine, is incapable of transforming any physical subject matter by chemical, electrical, or mechanical acts. If the "acts" of a claimed process manipulate only numbers, abstract concepts or ideas, or signals representing any of the foregoing, the acts are not being applied to appropriate subject matter. In re Schrader, 22 F.3d 290 at 294-95, 30 USPQ2d 1455 at 1458-59 (Fed. Cir. 1994). Transformation of data by a machine constitutes statutory subject matter if the claimed invention as a whole accomplishes a practical application. That is, it must produce a "useful, concrete and tangible result." State Street, 149 F.3d 1368, 1373, 47 USPQ2d 1596 at 1600-02 (Fed.

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Cir. 1998). MPEP 2106. State Street required transformation of data by a machine before it applied the “useful, concrete, and tangible test.” However, State Street does not hold that a “useful, concrete and tangible result” alone, without a machine, is sufficient for statutory subject matter. State Street, 149 F.3d at 1373, 47 USPQ2d at 1601.

Claims 1-20 are rejected under 35 U.S.C. 101 because the claimed invention, appearing to be comprised of software alone without claiming associated computer hardware required for execution, is not supported by either a specific and substantial asserted utility (i.e., transformation of data) or a well established utility (i.e., a practical application).

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-20 are also rejected under 35 U.S.C. 112, first paragraph. Specifically, since the claimed invention is not supported by either a specific and substantial asserted utility or a well established utility for the reasons set forth above, one skilled in the art clearly would not know how to use the claimed invention.

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-20 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between

the elements. See MPEP § 2172.01. The omitted elements are computer hardware necessary to execute the claimed software and render the invention operative.

7. Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Crelier (U S Pat. 6,151,703).

As to claim 1, Crelier teaches a computer programming environment (development system) supporting virtual function calls (v-table, col. 13, line 12) [also inherent to Java, the implementation language in Crelier] and supporting both interpretation of functions (interpretation of the callee method) in a set of functions (callee methods) and execution of compiled code representing functions in the set of functions (invocation of the compiled version of the callee method), the set of functions being referenced in one or more loaded classes (caller) in a set of computer code (caller method, fig. 5). Crelier further teaches computer program product comprising a computer usable medium having computer readable code means embodied in said medium [inherent to Crelier]. Crelier further teaches means for generating (development system):

a first virtual function portion (compile code slot 563 part of method block 560) for access by an interpreter for interpreting a call in the computer code to any one of the functions (call back into Java runtime interpreter for interpretation of the callee method);

a second function portion (invoker slot 564 part of method block 560) for access during execution of the compiled code for calling any one of the functions in the set of the functions (result in invocation of the compiled version of the method). See col. 11, lines 19-64; fig. 4, 5.

While Crelier teaches that the first function portion and the second function portion are parts of an overall hybrid method dispatch table (method block 560), Crelier does not explicitly name the first function portion and the second function portion respectively as the first function table and the second function table. This, however, would have been an obvious choice in naming data structures.

Further, while Crelier does not explicitly teach the generation is performed for each loaded class, this would have been an obvious choice in view of the typical class data structures of object-oriented languages such as C++ and Java which provide each class with a v-table / function dispatch table.

It is noted that Crelier teaches the amended "any one of the functions" in that a compiled caller is able to call both compiled and interpreted callees and an interpreted caller is also able to call both compiled and interpreted callees. Col. 11, lines 19-64; fig. 4, 5.

As to claim 2, Crelier as modified teaches the first virtual function table comprises interpretation entries, each interpretation entry being associated with a function in the set of functions (callee methods) and pointing to a corresponding function data structure (pointer 563, fig. 5), and the second virtual function table comprises compilation entries each compilation entry being associated with a function in the set of functions (callee methods), and pointing to either a corresponding block of executable code (pointer 564) (invocation of the compiled version of the method) or to a corresponding block of interpreter transition code. See col. 11, lines 19-64; fig. 5. It is noted that the two alternatives linked by 'or' is interpreted as requiring one of the two.

8. Claims 3-20 would be allowable if rewritten or amended to overcome the rejections under 35 U.S.C. 101 and 112, set forth in this Office action.

9. Applicant's arguments filed 1/20/2005 have been fully considered but they are not persuasive.

Regarding the argued any one of the functions (remarks, page 11, 2<sup>nd</sup>-3<sup>rd</sup> paragraphs), this is met by Crelier in that a compiled caller is able to call both compiled and interpreted callees and an interpreted caller is also able to call both compiled and interpreted callees. Col. 11, lines 19-64; fig. 4, 5. Therefore, Crelier meets "interpreting a call ... to any one of the functions in the set of functions" and "for access during execution of the compiled code for calling any one of the functions in the set of

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functions" as recited in claim 1. It is noted the limitations of "for interpreting" and "for calling" are the respective result clauses.

Regarding the argued "array of pointers", "addresses to jump to" and "do not extend to fill the data blocks" (remarks, paragraph bridging pages 10 and 11), while they might have been disclosed, these features are not recited in claims 1 and 2. The argument is thus not persuasive.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sue Lao whose telephone number is (571) 272-3764. A voice mail service is also available at this number. The examiner's supervisor, SPE Meng-Ai An, can be reached on (571) 272 3756. The examiner can normally be reached on Monday - Friday, from 9AM to 5PM. The fax phone number for the organization where this application or proceeding is assigned is (703) 872 9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-2100.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

June 14, 2005



**SUE LAO**  
**PRIMARY EXAMINER**